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| 10/566,371 | 01/30/2006 | Dieter Barfurth | 283348US0PCT | 2106 |
| 22850 | 7590 | 03/13/2009 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER SASTRI, SATYA B | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1796 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/566,371 | Applicant(s) BARFURTH ET AL. | |
| | Examiner SATYA B. SASTRI | Art Unit 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This office action is in response to application filed on 1/30/06. Claims 1-11 are now pending in the application.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 7/28/03. Applicants are requested to submit a certified copy of 103 34 574.4 application as required by 35 U.S.C. 119(b).

Claim Objections

3. Claims 1, 2, 8, 10 are objected to for the following minor informalities:

In claim 1, the words "divalent" and "isobutoxy" are spelt incorrectly. Additionally, parenthesis is incomplete in the divalent group $-C(O)-(CH_2)_3-$.

Applicants may amend the language in claim 2 as "mixing at least one monomer and components (i) and (ii) *to form a mixture*" so as to provide antecedent basis for "the mixture" in line 4.

In claim 8 should be amended as "...obtainable by a process as claimed in claim 2".

In claim 10, the language should be amended to replace "in" by "to" or as appropriate.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is indefinite due to the word "obtainable" which should be replaced with "obtained." It is not understood how one can claim something (a dispersion) which does not yet exist, but which is obtainable through some future step or means.

Claim Rejections - 35 USC § 102 and 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamori et al. (EP 1172412 A1, cited as X-reference in the International Search Report).

Tamori et al. disclose aqueous dispersion obtained by hydrolysis/condensation and radical polymerization of a mixture containing (A) at least one selected from an organosilane, a hydrolyzate of the organosilane and a condensate of the organosilane, and (B) a radical polymerizable vinyl monomer, in an emulsified state (abstract).

The disclosed organosilanes useful as component (A) include methyltrimethoxysilane, n-propyltrimethoxysilane, n-propyltriethoxysilane, vinyltrimethoxysilane, 3-methacryloxypropyltrimethoxysilane and 3-methacryloxypropyltriethoxysilane. Preferably, trialkoxysilanes such as methyltrimethoxysilane and methyltriethoxysilane or dialkoxysilanes such as dimethylmethoxysilane or dimethyldiethoxysilane may be used as organosilane (0016-0026). Component (B) may be a monomer belonging to (meth)acrylic esters or vinyl monomers (0041-0048). The ratio of (A) to (B) may range from 1 to 95 parts by wt. of (A) to 99 to 5 parts by wt. of (B). A silane coupling agent (C) may be added to the aqueous dispersion in amounts up to 20% by wt., based on 100 parts by wt. of (A) and (B) (0076-0080).

The aqueous dispersion is obtained by emulsifying a mixture containing components (A) and (B) in the presence of water, an emulsifier and optionally a catalyst, adding a radical polymerization initiator and optionally a catalyst to conduct hydrolysis/condensation and radical polymerization. Condensation of (A) and radical polymerization of (B) proceed concurrently. Water used in the production may be previously admixed with component A or water further added to the mixture of component (A) together with the emulsifier. A variety of surfactants are useful as emulsifiers (0050-0054). When a silane coupling agent, component (C), is used in the

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polymer preparation, it is preferred that the coupling agent is added to the mixed solution of component (A) and (B) before emulsification (0076-0079).

The aqueous dispersions may be used as coatings compositions for overcoating or undercoating on substrates such as cement, concrete etc. that are surface treated (0152, 0163, 0164). Working examples 1-6 disclose a process wherein a homogeneous solution obtained by mixing component (A), (B) and optionally (C) was cooled with ice, and then sodium dodecylbenzenesulfonate as emulsifier and water were mixed therewith to form an emulsion. To the emulsified product, an initiator is added and polymerized (0178). Dimethyldimethoxysilane, acrylic monomer and g-methyacryloxypropyltrimethoxysilane are used as components (A), (B) and (C).

The prior art fails to disclose the specific use of organosilanes I and II of present claim 1 to prepare the polymer dispersion.

The prior art discloses many useful organosilanes for use as component (A), with trialkoxysilanes such as methyltromethoxysilane and methyltriethoxysilane or dialkoxysilanes such as dimethylmethoxysilane or dimethyldiethoxysilane as preferred species (0016-0026). Given that the working examples disclose aqueous dispersions prepared from ethylenically unsaturated monomer, coupling agent and organosilane (A), it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace one preferred species of (A), i.e. dimethyldimethoxysilane in the working examples with the other disclosed preferred species, i.e. methyltrimethoxysilane or methyltriethoxysilane and thereby arrive at the presently cited claims.

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With regard to claim 9, one skilled in the art would be motivated to combine components (i) and (ii) because both are silicon-containing organic compounds that would be readily miscible to form homogeneous mixture.

9. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Eck et al. (US 5,753,733, cited as X-reference in the International Search Report).

The prior art to Eck et al. concerns dispersion powder which is redispersible in water and is made from water insoluble homopolymers or copolymers of preferably ethylenically unsaturated monomers and one or more organosilicon compounds plus optionally one or more additives. The composition is obtained by polymerizing one or more monomers in the presence of 0.1 to 30% by wt. relative to the wt. of monomers, of one or more silicon compounds which are dispersible in water and selected from silanes, polysilanes, polycarbosilanes (abstract).

Working example 1 discloses a dispersion comprising a copolymer of vinyl acetate, methacryloxypropyltriethoxysilane and isooctyltriethoxysilane prepared by emulsifying the monomers in polyvinyl alcohol and polymerizing the mixture.

In light of above, the presently cited claim is anticipated by the prior art.

10. Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eck et al. (US 5,753,733, cited as X-reference in the International Search Report).

The discussion with regard to Eck et al. in paragraph 9 above is incorporated herein reference.

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The prior art further discloses vinyl esters, (meth)acrylic acid esters and other monomers as , ethylenically unsaturated monomers (col. 2, lines 28-67, col. 3, lines 1-30). Such monomers are copolymerized with 0.02 to 5% by wt., based on the total wt. of monomers, of ethylenically unsaturated silicon compounds, such as γ -methacryloxypropyltriethoxysilane, vinyltrimethoxy- and vinyltriethoxysilane (col. 3, lines 31-65 and col. 2, lines 1-34). Additionally, non-copolymerizable organosilicon compounds disclosed include a variety of silicic acid esters, organoorganoxysilane etc. (col. 4, lines 34-54, claims 1-11).

The polymerization is preferably carried out by emulsion polymerization process in the presence of emulsifiers and/or protective colloids using free radical initiators. The polymerization can be carried out with initial introduction of all the constituents or individual constituents of the reaction mixture (col. 6, lines 1-35, col. 6-7, bridging paragraph, claims 66-8)). The dispersion is subsequently dried to isolate the dispersion powder. The dispersion powder may be used with hydraulic binder, for the preparation of building adhesives, plaster, stopper compositions etc. (col. 8, lines 25-42).

The prior art fails to disclose a process wherein the monomer and silicon-containing compounds are mixed, dispersed in a surfactant-containing water and polymerized.

The prior art is open to initial introduction of all the constituents or individual constituents of the polymerization mixture and carrying out the emulsion polymerization in the presence of emulsifiers and/or protective colloids. Furthermore, the working example 1 discloses a process wherein monomer and the silicon-containing compounds are all emulsified into a solution of protective colloid. Given that the disclosure is open to use of emulsifiers and/or protective colloids, it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to introduce the reactive components individually or as a mixture into water containing a surfactant and polymerizing the mixture as claimed presently.

With regard to claim 9, one skilled in the art would be motivated to combine components (i) and (ii) because both are silicon-containing organic compounds that would be readily miscible to form homogeneous mixture.

With regard to claims 10 and 11, the powders are redispersible in water for use in building products, for the preparation of adhesives, for coating compositions, joint mortars and paints or as binders for textiles (col. 1, lines 47-54, col. 8, lines 25-43).

11. The prior art made of record not relied upon is considered pertinent to applicant's disclosure. EP1045009 A1 cited as an X reference in the International Search Report is considered to be cumulative to or of less relevance compared to the prior art relied upon in the rejection above.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Mondays, Thursdays and Fridays, 7AM-5.30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. David Wu can be reached on 571-272-1114.

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The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Examiner, Art Unit 1796